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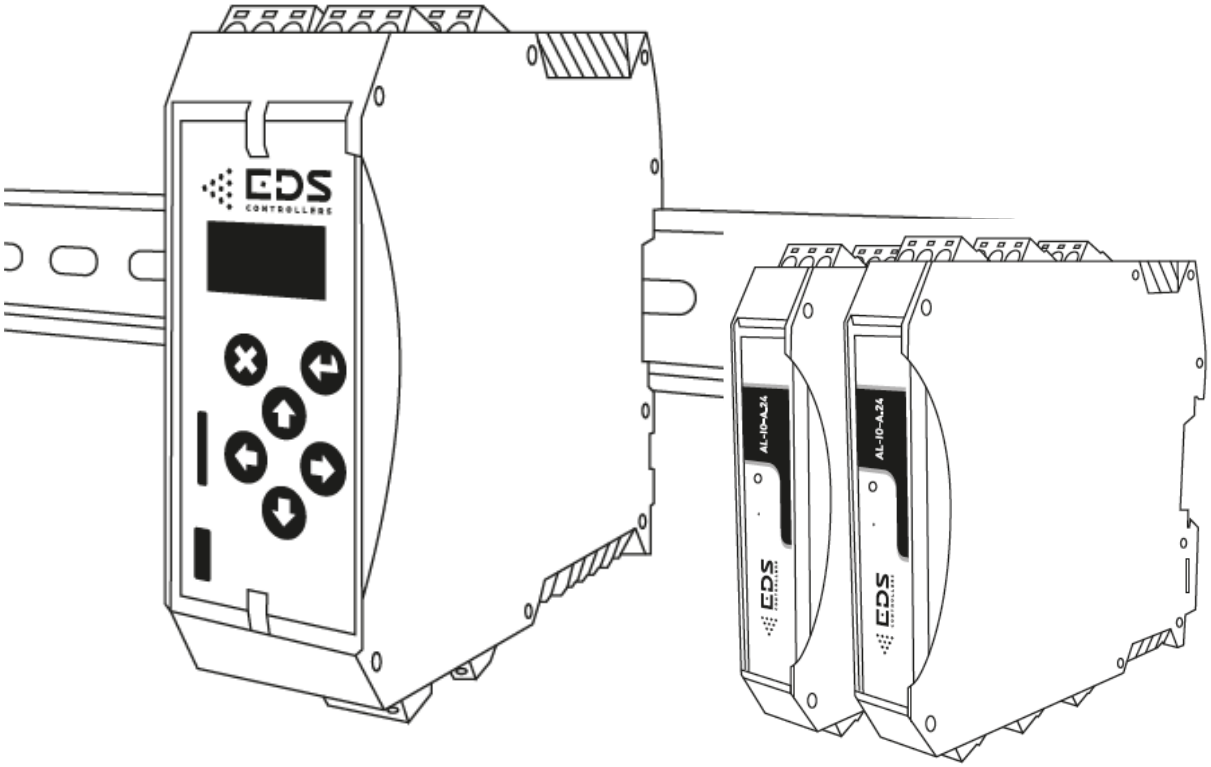
PRODUCT CATALOG

Modular PLC series Ambity Line™



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EDS CONTROLLERS®
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SYSTEM DESCRIPTION

Ambity Line™ is a family of modular PLCs. The solution is designed for micro and small applications (up to a few dozen measurement inputs/outputs) and combines the advantages of compact and modular solutions. The central unit can be equipped with built-in I/O channels, in an amount that meets the needs of most small systems (objects of a concentrated nature, working on several measurement and control signals, such as mixers, fermenters, autoclaves, biochemical reactors, filter units, etc.). As needed, the system allows for free expansion by easily adding more expansion modules(up to 128 measurement inputs and control outputs in total).

The solution can be used in typical industrial applications (machinery, process lines, food and machinery industry, dryers, quality control systems), as well as in solutions related to technical and building infrastructure (e.g. transport systems, ventilation, dust removal, clean zones, lighting, boiler houses, heat and water supply nodes).

MODULARITY

The family is divided into 3 categories of modules:

- AL-CPU – central units (may have built-in input/output module)
- AL-IO – input/output modules (analog, digital, counter, timer, special)
- AL-COM[1] – communication modules (additional communication interfaces, e.g., CAN)

The AL-CPU and AL-IO modules are mounted on a DIN rail. The AL-CPU allows up to 10 AL-IO modules to be connected and powered via special connectors mounted in a DIN rail recess. These connectors also form a communication bus for the Ambity Line™ system. Such a solution allows you to conveniently plug/unplug the module without disassembling the bus.

AL-COM modules are also DIN-rail mounted, but the communication and power bus is in the form of IDC (so-called ribbon) connectors.

The most important component of the system is the central processing unit (AL-CPU). Each system consists of exactly one AL-CPU and a number of AL-IO and AL-COM modules. The system can consist of the AL-CPU alone if the user only depends on the built-in communication interfaces (Modbus RTU and Ethernet).

The role of the AL-CPU is:

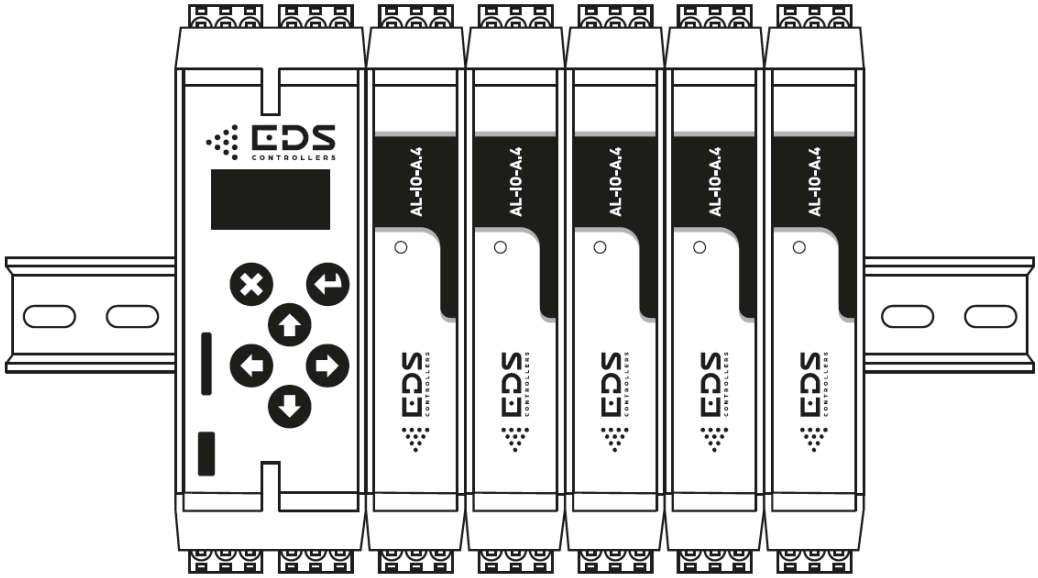
- execution of the user program
- communication with the AL-IO and AL-COM modules
- communication with other systems using available communication interfaces
- system management in general

The AL-CPU can be equipped with an internal I/O module, identical to the AL-IO category modules. Variants of possible AL-IO modules, available as CPU internal (embedded) modules, are listed in statements and specifications with an additional designation/suffix "i" ("i" = internal).

This compact design allows to reduce the cost of the system and implement simple projects, requiring basic communication interfaces and several I/Os, with a single device. Having an internal AL-IO module does not preclude attaching other modules to the CPU and easily expanding the system.

The "Modbus RTU" protocol is planned to be added to AL-IO modules in the future. This will allow the AL-IO modules to operate in the Ambity Line™ system or with any master unit via Modbus RTU. This is possible because the AL-IO modules use RS-485 for communication and can be supplied with DC voltage in the range of 22...24...26V.

[1] AL-COM is currently not available in the offer.



Main unit with expansion modules

INTERFACES

Each AL-CPU comes standard with:

- local user interface (OLED display, buttons)
- 1x interface for communication with AL-IO modules
- 1x USB OTG (communication with the AL Utility™ program; support for USB flash drives)
- 1x microSD (file sharing memory; process data logging memory[2])
- 1x Ethernet (TCP/IP; for communication with AL Utility™[3])
- 1x Modbus RTU (master/slave) non-isolated

AL-CPU can be additionally equipped with:

- 1x Modbus RTU (master/slave) isolated

CONFIGURABLE IO CHANNELS

A distinguishing feature of the Ambity Line™ family is that it has AL-IO modules with configurable channels. Configurable channels, unlike dedicated channels, can operate in different modes – depending on your needs, it can be a current or voltage input, as well as a digital input or output. It is a kind of universal input/output channel.

In the AL-IO-A group of input/output modules (analog current or voltage input and digital input/output modules), you can find variants in which all channels are configurable in the full range of types available for the other modules. Such a module can replace any other variant from the same product group (AL-IO-A). With this approach, a user who has built a system from modules with dedicated channels (lower start-up cost of the installation) does not need to have a large number of modules in case of failure (typically at least one spare piece of each module variant). It is enough to have one or two pieces of modules with fully configurable channels. This way, in case of failure, the maintenance engineer will have a suitable backup module. This approach reduces the risk of downtime, shortens repair times, and at the same time significantly reduces expenditures on spare parts inventory.

BACKUP OF THE BATTERY

There are projects where the system cannot lose process data due to a power outage. For example: stopping the process (machine) in a safe manner (e.g., with a single-phase outage), continuing (preventing re-initialization) of a PID process interrupted by a temporary power outage, even a relatively long one, dumping a large amount of process data in the event of a power failure, and even continuing to measure (and record) parameters despite the absence of main power. To make this possible, an

[2] functionality currently unavailable. It will be added in the future.
[3] future expansion with additional industrial protocols, e.g., Modbus TCP.

ordinary 12V 1.2Ah battery can be connected to the AL-CPU – this will allow the user program to complete tasks, secure data and shut down the system normally. When the main power returns, the user's program resumes and the protected data is restored.

When the system is shut down, the battery current is not drawn. When the main power source is available, the AL-CPU recharges the battery to be fully ready in case of a power outage.

SYSTEM MANAGEMENT – UTILITY PROGRAM

The system can be managed through the local user interface or remotely (USB and Ethernet) using AL Utility™. The local user interface allows you to manage the system to the limited extent necessary when the device cannot be connected to a computer. AL Utility™ provides complete and more convenient access. Therefore, it is the recommended method of configuring the system.

The program's key features include:

- system configuration
- user program management (upload, start, stop)
- updating module firmware
- monitoring of the current system and process data

Operation and performance through the AL Utility™ application enables, among others:

- user configuration (user settings (private), user management)
- communication with the CPU via USB and TCPIP
- logging into the CPU
- CPU and module firmware updates
- downloading and visualizing information about the system
- CPU configuration (local settings, network settings, user program settings, reset to factory settings)
- downloading and visualizing status data
- downloading and visualizing process data
- manual control of IO modules
- calibration of IO modules
- changing the addresses of the modules on the bus
- access to handy device documentation
- access to user program information

Downloadable utility software http://edscontrollers.com/al-utility.

CREATION OF A USER PROGRAM

EDS CONTROLLERS™ controllers are programmed in C and C++. The advantage of the solution is the widespread knowledge of these languages and the performance of the created applications.

The creation of a usage program is available on contract as a service. As part of the cooperation, the user obtains a complete solution, ready for use in its product.

INSTALLATION

Easy installation and expansion of the system is made possible by the built-in snap-in (press-on type) – there is no need to install additional brackets or adapters. Mounting, replacement or expansion can be carried out directly on the DIN rail. Individual modules are connected by a bus connector, forming lines: communication and power supply, installed inside the DIN rail (no wiring required).

All inputs and outputs are equipped with detachable terminal blocks.

The housing is made of high-quality polyamide PA66, characterized by high mechanical resistance, while maintaining flexibility, which reduces the risk of damage to the product during installation.

SYSTEMATICS AND NOMENCLATURE

MODEL NOMENCLATURE

AL-(a)-(b).(c)(i)

AL – Ambity Line™

(a) – module category: CPU, IO, COM

(b) – group name

Defines the general characteristics of the modules belonging to the group.

For example:

AL-IO-A is a group of modules with non-isolated analog inputs (voltage, current), digital inputs and digital outputs.

(c) – number of the implementation variant

Determines the number of channels and functionality of individual channels.

For example:

AL-IO-A.10i – 8 channels, each fully configurable (voltage/current/digital inputs, digital outputs), internal module

AL-IO-A.36 – 12 channels (6 as current input only, 6 as digital output only), external module

(i) – the suffix "i" specifies whether it is an internal module (occurs as an additional designation for AL-IO modules internal – placed in the same enclosure with the CPU)

DESCRIPTION OF THE MODULES

AL-CPU

Group:	**Description:**
M	Local User Interface (OLED 0.9", 6 buttons) 2x Modbus RTU, 1x Ethernet, 1x USB OTG, 1x microSD Program size up to 2 MB, data memory ~ 4 MB

AL-IO

Group:	**Description:**
A	Non-isolated analog-digital module Current analog inputs: nominal ranges 0-20mA Voltage analog inputs: nominal ranges 0-10V, 0-24V Digital inputs (realized as voltage measurement; it allows to set the threshold and hysteresis): nominal ranges 0-24V Digital outputs: OC (active low) 100mA

LIST AND SPECIFICATION OF MODULES – MAIN UNITS

SUMMARY OFAL-CPU-M MODULES

Model:	Modbus RTU (isolated)	Modbus RTU (non-isolated)	USB OTG	microSD	Ethernet	Local user interface
AL-CPU-M.1-x.yyi	1	1	1	1	1	YES
AL-CPU-M.2-x.yyi	-	1	1	1	1	YES

x.yy – group and variant of the built-in AL-IO module; x.yy = 0.00 means no built-in module. Examples: AL-CPU-M.2-0.00i, AL-CPU-M.2-A.10i.

SPECIFICATION

Power supply:	
Voltage	22..24..26 VDC
Power consumption	Typically 150mA @24V (max. 250mA)
Power source	External stabilized power supply
Protection against change of polarity	YES
Internal overload protection	YES (1.5A)
Emergency power supply	YES – external 12V 1.2Ah battery pack Charging with 150mA current via built-in charger

Processor, memory, performance:	
Processor	ARM Cortex-M7 200MHz
User program size	Up to 2 MB Stored in the internal file system
User program memory	1 MB MCU FLASH (fast; program code only) 128 kB MCU SRAM (fast; only stack and program data) 4 MB SDRAM (shared between code and data)
RETAIN data size	0.25 MB (saved to the internal file system when the user program is stopped and restored when the user program is started)
Supported number of inputs/outputs	It results from the modules used. The CPU allows you to connect up to 10 I/O modules, obtaining up to 128 supported I/O (built-in 8-channel I/O + 10x external 12-channel module)
Configurable program cycle time	50..1000ms

Interfaces:	
Modbus RTU isolated	Operating modes: master, slave Transmission speed: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 Insulation strength: Basic insulation; Vmax 560Vrms; Test voltage 2500Vrms@1min
Modbus RTU non-isolated	Operating modes: master, slave Transmission speed: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Ethernet	10/100 Base-T
Local user interface	OLED display 128x64 pixels, monochrome white 6 buttons
USB-OTG	MicroUSB slot type In HOST mode: USB memory support (data transfer from to AL-CPU); supported formats: FAT32

	In DEVICE mode: communication with the computer (AL Utility™ program)
microSD	Support for a memory card for data recording and data transfer from/to AL-CPU Supported formats: FAT32
AL-IO-bus	System bus: for communication with AL-IO modules (RS-485 with dedicated communication protocol)

Measurement and control:	
Number of channels	0 or 8 (depending on the implementation variant)
Signal type	Depending on the variant, the type and scope of measurement for the CPU are the same as the specifications of the corresponding AL-IO modules (example: AL-CPU-M.1-A.10i → AL-IO-10)

ADDITIONAL INFORMATION:

Installation:	
Type of installation	DIN rail, Type O, 35 mm
Mounting method	Built-in latches (apply-and-press type), no need for additional brackets or adapters
Replacement or expansion	Directly on the DIN rail
Combining modules	Using a bus connector, forming a communication and power bus, installed inside the DIN rail (no wiring required)

Housing:	
Degree of protection	IP 20/DIN EN 60529
Fabrication material	Polyamide (PA66)
Flammability and fire safety class	UL 94 V0
Color	Light gray RAL 7035 (green plugs)
Dimensions (without plugs)	35 x 99 x 114.5 mm (W x H x D)
Dimensions (with plugs)	35 x 109 x 114.5 mm (W x H x D)

Input/output terminals:	
Type	Terminal block detachable, screw connectors, single-section
Raster	5.0 mm
Ø hole / cable dimensions	max. power cable cross-section 2.5 mm2/ max. cable diameter 2.0 mm
Insulation stripping length	7 mm
Screw type	M3

Conditions of use:	
Temp. range	0... +55°C
Humidity	85% max.

Transportation and storage:	
Temp. range	-20... +70°C
Humidity	85% max.
Unit packaging	Cut cardboard box
Number of pieces per package	1
Package dimensions	118 x 80 x 140 mm (W x H x D)
Country of origin	PL

Compliance/certifications:	
CE mark	YES
RoHS rating	YES
REACH Assessment	YES

SUMMARY AND SPECIFICATION OF MODULES – INPUT AND OUTPUT MODULES

SUMMARY OF AL-IO-A MODULES

Legend:

Universal (U), means that a channel can be set to measure at least 2 different types of signals, such as current or voltage.

- AI/DI/DO – analog inputs (voltage or current) or digital inputs and outputs
- AI/DI – analog inputs (voltage or current) or digital inputs
- DI/DO – digital inputs and outputs

Dedicated, means that a channel is specialized to measure a specific type of signal, such as current, while voltage channels can always serve as a digital input.

- AI (DI) (voltage) – analog inputs (voltage only) or digital inputs; (DI) means that it can be used as a digital input
- AI (current) – analog inputs (current only)
- DI – digital inputs
- DO – digital outputs

Operating ranges:

- AI (DI) (voltage): nominal ranges 0-10V, 0-24V
- AI (current): nominal range 0-20mA
- DI (realized as voltage measurement; this allows you to set the threshold and hysteresis): nominal range 0-24V
- DO: OC (active low) 100mA

"i" – the module is also available as an internal AL-IO module (suffix "i"; for example AL-IO-A.10→ AL-CPU-M.1-A.10i)

The difference between the variant containing the AI (DI), used for digital inputs, and the variant containing the DI alone, is that the AI (DI) has precise and calibrated components to accurately measure the voltage signal. The variant with DI alone has only rough accuracy (a few percent).

			Universal			**Dedicated**			
Model:	variant **"i"**	**Total number of channels**	**AI/DI/DO**	**AI/DI**	**DI/DO**	**AI (DI)** (voltage)	**AI** (current)	**DI**	**DO**
AL-IO-A.10	YES	8	8						
AL-IO-A.11	YES	8		8					
AL-IO-A.12	YES	8				8			
AL-IO-A.13	YES	8					8		
AL-IO-A.14	YES	8		4					4
AL-IO-A.15	YES	8				4			4
AL-IO-A.16	YES	8					4		4
AL-IO-A.17	YES	8			8				
AL-IO-A.18	YES	8							8
AL-IO-A.19	YES	8						8	

AL-IO-A.30	NO	12	12						
AL-IO-A.31	NO	12		12					
AL-IO-A.32	NO	12				12			
AL-IO-A.33	NO	12					12		
AL-IO-A.34	NO	12		6					6
AL-IO-A.35	NO	12				6			6
AL-IO-A.36	NO	12					6		6
AL-IO-A.37	NO	12			12				
AL-IO-A.38	NO	12							12
AL-IO-A.39	NO	12						12	

Table: number and types of signals in a particular device model.

SPECIFICATION

Power supply:	
Voltage	22..24..26 VDC
Power consumption	Typically 25mA @24V (max. 50mA)
Power source	From the system bus
Protection against change of polarity	YES
Internal overload protection	YES (100mA)

Communication:	
Interface type	AL-IO-bus – System bus for communication with AL-IO modules (RS-485 with dedicated communication protocol)

Measurement and control:	
Number of channels	8 or 12 (depending on the implementation variant)
Signal type	Depending on the design variant, according to the list of AL-IO modules
Galvanic isolation from the system	NO
Galvanic isolation between channels	NO
Measurement speed	min. 10 measurements per second (each channel)
Current inputs:	
ranges of work	0-20mA (max. 0-24mA)
input impedance	~100 Ohms
accuracy	0.15% of the nominal range
temp. stability	0.01%/°C
overcurrent protection	YES
protection against change of polarity	NO (changing the polarity risks damaging the channel)
Voltage inputs:	
ranges of work	0-10V (max. 0-11V) 0-24V (max. 0-28V)
input impedance	~100 kOhm
accuracy	0.15% of the nominal range
temp. stability	0.01%/°C
protection against change of polarity	NO (changing the polarity risks damaging the channel)
Digital input (realized as voltage measurement):	
ranges of work	0-24 V
input impedance	~100 kOhm
accuracy	5% of the nominal range
protection against change of polarity	NO (changing the polarity risks damaging the channel)
Digital outputs:	
type	OC (active low) (N-MOSFET transistor)
maximum voltage	30V
maximum current	100mA
impedance in the open state	~100 kOhm
impedance in the short-circuit state	~5 Ohms
overload protection	YES (100 mA)
protection against change of polarity	NO (changing the polarity risks damaging the channel)

ADDITIONAL INFORMATION:

Installation:

Type of installation	DIN rail, Type O, 35 mm
Mounting method	Built-in latches (apply-and-press type), no need for additional brackets or adapters
Replacement or expansion	Directly on the DIN rail
Combining modules	Using a bus connector, forming a communication and power bus, installed inside the DIN rail (no wiring required)

Housing:

Degree of protection	IP 20/DIN EN 60529
Fabrication material	Polyamide (PA66 FRIANYL® A3 RV0)
Flammability and fire safety class	UL 94 V0
Color	Light gray RAL 7035 (green plugs)
Dimensions (without plugs)	17.5 x 99 x 114.5 mm (W x H x D)
Dimensions (with plugs)	17.5 x 109 x 114.5 mm (W x H x D)

Input/output terminals:

Type	Terminal block detachable, screw connectors, single-section
Raster	5.0 mm
Ø hole / cable dimensions	max. power cable cross-section 2.5 mm2/ max. cable diameter 2.0 mm
Insulation stripping length	7 mm
Screw type	M3

Conditions of use:

Temp. range	0... +55°C
Humidity	85% max.

Transportation and storage:

Temp. range	-20... +70°C
Humidity	85% max.
Unit packaging	Cut cardboard box
Number of pieces per package	1
Package dimensions	118 x 80 x 140 mm (W x H x D)
Country of origin	PL

Compliance/certifications:

CE mark	YES
RoHS rating	YES
REACH Assessment	YES

LINKS TO PRODUCT SHEETS

Model:	Short Description:	Website link:	QR code for the site:
AL-CPU-M.1-0.00i	Central unit without built-in I/O module	http://edscontrollers.com/al-cpu-m1-000i	
AL-CPU-M.2-0.00i	Central unit without built-in I/O module	http://edscontrollers.com/al-cpu-m2-000i	
AL-CPU-M.1-A.10i	8 configurable channels: AI/DI/DO (current, voltage or digital) | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m1-a10i	
AL-CPU-M.2-A.10i	8 configurable channels: AI/DI/DO (current, voltage or digital) | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m2-a10i	
AL-CPU-M.1-A.11i	8 configurable channels: AI/DI (current, voltage or digital) input ranges: 0-20mA, 0-10V, 0-24V	http://edscontrollers.com/al-cpu-m1-a11i	
AL-CPU-M.2-A.11i	8 configurable channels: AI/DI (current, voltage or digital) input ranges: 0-20mA, 0-10V, 0-24V	http://edscontrollers.com/al-cpu-m2-a11i	
AL-CPU-M.1-A.12i	8 dedicated AI (DI) channels (voltage or digital) | input ranges: 0-10V, 0-24V	http://edscontrollers.com/al-cpu-m1-a12i	
AL-CPU-M.2-A.12i	8 dedicated AI (DI) channels (voltage or digital) | input ranges: 0-10V, 0-24V	http://edscontrollers.com/al-cpu-m2-a12i	
AL-CPU-M.1-A.13i	8 dedicated AI channels (current) | input range: 0-20mA	http://edscontrollers.com/al-cpu-m1-a13i	
AL-CPU-M.2-A.13i	8 dedicated AI channels (current) | input range: 0-20mA	http://edscontrollers.com/al-cpu-m2-a13i	
AL-CPU-M.1-A.14i	4 configurable AI/DI channels (current, voltage or digital) and 4 dedicated DO channels | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m1-a14i	
AL-CPU-M.2-A.14i	4 configurable AI/DI channels (current, voltage or digital) and 4 dedicated DO channels | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m2-a14i	
AL-CPU-M.1-A.15i	4 dedicated AI (DI) channels (voltage or digital) and 4 dedicated DO channels | input ranges: 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m1-a15i	
AL-CPU-M.2-A.15i	4 dedicated AI (DI) channels (voltage or digital) and 4 dedicated DO channels | input ranges: 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m2-a15i	

AL-CPU-M.1-A.16i	4 dedicated AI (current) channels and 4 dedicated DO channels | input range: 0-20mA, output range: OC 100mA	http://edscontrollers.com/al-cpu-m1-a16i	
AL-CPU-M.2-A.16i	4 dedicated AI (current) channels and 4 dedicated DO channels | input range: 0-20mA, output range: OC 100mA	http://edscontrollers.com/al-cpu-m2-a16i	
AL-CPU-M.1-A.17i	8 configurable DI/DO channels | input range: 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m1-a17i	
AL-CPU-M.2-A.17i	8 configurable DI/DO channels | input range: 0-24V, output range: OC 100mA	http://edscontrollers.com/al-cpu-m2-a17i	
AL-CPU-M.1-A.18i	8 dedicated DO channels | output range: OC 100mA	http://edscontrollers.com/al-cpu-m1-a18i	
AL-CPU-M.2-A.18i	8 dedicated DO channels | output range: OC 100mA	http://edscontrollers.com/al-cpu-m2-a18i	
AL-CPU-M.1-A.19i	8 dedicated DI channels | input range: 0-24V	http://edscontrollers.com/al-cpu-m1-a19i	
AL-CPU-M.2-A.19i	8 dedicated DI channels | input range: 0-24V	http://edscontrollers.com/al-cpu-m2-a19i	
AL-IO-A.10	8 configurable channels: AI/DI/DO (current, voltage or digital) | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a10o	
AL-IO-A.11	8 configurable channels: AI/DI (current, voltage or digital) input ranges: 0-20mA, 0-10V, 0-24V	http://edscontrollers.com/al-io-a11o	
AL-IO-A.12	8 dedicated AI (DI) channels (voltage or digital) | input ranges: 0-10V, 0-24V	http://edscontrollers.com/al-io-a12o	
AL-IO-A.13	8 dedicated AI channels (current) | input range: 0-20mA	http://edscontrollers.com/al-io-a13o	
AL-IO-A.14	4 configurable AI/DI channels (current, voltage or digital) and 4 dedicated DO channels | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a14o	
AL-IO-A.15	4 dedicated AI (DI) channels (voltage or digital) and 4 dedicated DO channels | input ranges: 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a15o	
AL-IO-A.16	4 dedicated AI (current) channels and 4 dedicated DO channels | input range: 0-20mA, output range: OC 100mA	http://edscontrollers.com/al-io-a16o	
AL-IO-A.17	8 configurable DI/DO channels | input range: 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a17o	

AL-IO-A.18	8 dedicated DO channels | output range: OC 100mA	http://edscontrollers.com/al-io-a18o	
AL-IO-A.19	8 dedicated DI channels | input range: 0-24V	http://edscontrollers.com/al-io-a19o	
AL-IO-A.30	12 configurable channels: AI/DI/DO (current, voltage or digital) | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a30o	
AL-IO-A.31	12 configurable channels: AI/DI (current, voltage or digital) | input ranges: 0-20mA, 0-10V, 0-24V	http://edscontrollers.com/al-io-a31o	
AL-IO-A.32	12 dedicated AI (DI) channels (voltage or digital) | input ranges: 0-10V, 0-24V	http://edscontrollers.com/al-io-a32o	
AL-IO-A.33	12 dedicated AI (current) channels | input range: 0-20mA	http://edscontrollers.com/al-io-a33o	
AL-IO-A.34	6 configurable AI/DI channels (current, voltage or digital) and 6 dedicated DO channels | input ranges: 0-20mA, 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a34o	
AL-IO-A.35	6 dedicated AI (DI) channels (voltage or digital) and 6 dedicated DO channels | input ranges: 0-10V, 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a35o	
AL-IO-A.36	6 dedicated AI (current) channels and 6 dedicated DO channels | input range: 0-20mA, output range: OC 100mA	http://edscontrollers.com/al-io-a36o	
AL-IO-A.37	12 configurable DI/DO channels | input range: 0-24V, output range: OC 100mA	http://edscontrollers.com/al-io-a37o	
AL-IO-A.38	12 dedicated DO channels | output range: OC 100mA	http://edscontrollers.com/al-io-a38o	
AL-IO-A.39	12 dedicated DI channels | input range: 0-24V	http://edscontrollers.com/al-io-a39o	
AL Utility™	Utility software	http://edscontrollers.com/al-utility	